CLAIMS:

1. A solid comprising inorganic substance and moiety R_{10} located on at least one surface of said inorganic substance, wherein said inorganic substance is inorganic oxide, and said R_{10} group selected from the group consisting of $-CH_2OH$, $-CH(OH)_2$, $-CH(OH)CH_3$, $-CH_2CH_2OH$, $-C(OH)_2CH_3$, $-CH_2CH(OH)_2$ and $-CH(OH)CH_2(OH)$.

2. The solid of claim 1, wherein R_{10} is attached to at least one surface of said inorganic substance via a bivalent moiety or atom.

3. The solid of claim 1, wherein R_{10} is an entity selected from the group consisting of $-CH_2OH$, $-CH(OH)CH_3$ and $-CH_2CH_2OH$.

4. The solid of claim 1, wherein R_{10} is $-CH_2OH$.

5. The solid of claim 1, wherein said inorganic substance is inorganic metal oxide, silicate or aluminosilicate.

6. The solid of claim 1, wherein the inorganic substance is magnetically responsive.

7. The solid of claim 5, wherein the inorganic metal oxide is silica, alumina, silica-alumina, zirconia, zirconate, titania, controlled pore glass or mixtures thereof.

8. The solid of claim 5, wherein the inorganic metal oxide is chromatographic grade silica.

9. The solid of claim 5, wherein the inorganic metal oxide is a silica gel.

10. A solid comprising (i) inorganic substance, (ii) moiety R_{10} located on at least one surface of said inorganic substance, and (iii) at least one binding moiety capable of binding analyte, wherein said R_{10} is selected from $-CH_2OH$, $-CH(OH)_2$, $-CH(OH)CH_3$, CH_2CH_2OH, $-C(OH)_2CH_3$, $-CH_2CH(OH)_2$ and $-CH(OH)CH_2(OH)$.

11. The solid of claim 10, wherein the at least one binding moiety is selected from the group consisting of ligand, protein, peptide, antigen and nucleic acid.

12. The solid of claim 10, wherein said at least one binding moiety is attached to the organic substance via at least one linker.

13. The solid of claim 10, wherein the at least one binding moiety is attached via at least one linker to said inorganic substance, wherein said at least one binding moiety is a receptor, antibody, antigen, DNA or RNA.

14. The solid of claim 10, wherein said at least one linker is an optionally substituted bivalent chemical group.

15. The solid of claim 10, comprising about 1 to about 10 R_{10} moieties per nm^2 of solid.

16. The solid of claim 15, comprising 0.04 to about 4 binding moieties per nm^2 solid.

17. The solid of claim 16, wherein said inorganic substance is silica and R_{10} is $-CH_2OH$.

18. The solid of claim 17, wherein said inorganic substance is silica gel.

19. The solid of claim 17, wherein said inorganic substance is chromatographic grade silica.

20. The solid of claim 14, wherein the optionally substituted chemical group is a hydrocarbyl comprising n -R- groups, with n being the number of -R- groups and n is an integer of at least 2, with n-1 -R- groups optionally replaced with -O-, -S-, carbonyl, thiocarbonyl, –OC(O)–, –C(O)O–, –SC(O)–, –C(O)S–, –OC(S)–, –C(S)O–, –C(S)S–, –SC(S)–, –N(R_4)–, –N(R_4)C(O)–, –C(O)N(R_4)–, –C(R_5)=N–, –N=C(R_5)–, –C(R_5)=NO–, –ON=C(R_5)–, –P–, –P(OH)O–, arylene, substituted arylene, cycloalkylene, substituted cycloalkylene, cycloalkenylene, substituted cycloalkenylene, bivalent heterocyclyl or substituted heterocyclyl, where R_4 and R_5 independently being H, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, cycloalkenyl, substituted cycloalkenyl, alkynyl, substituted alkynyl, cycloalkynyl, substituted cycloalkynyl, aryl, substituted aryl, aralkyl or substituted aralkyl

21. The solid of claim 12, wherein said at least one linker is bivalent optionally substituted chemical group of about 1 to about 30 atoms in length measured from the binding moiety to the inorganic substance, wherein the chemical group comprises at least one -R- group, with said -R- group being a member selected from the group consisting of -CH_2-, -C(R_1)H-, -C(R_2)=C(R_3)- and -C≡C-, where R_1, R_2 and R_3 independently being H, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, cycloalkenyl, substituted cycloalkenyl, alkynyl, substituted alkynyl, cycloalkynyl, substituted cycloalkynyl, aryl, substituted aryl, aralkyl or substituted aralkyl, said -R- group optionally replaced with -O-, -S-, carbonyl, thiocarbonyl, –OC(O)–, –C(O)O–, –SC(O)–, –C(O)S–, –OC(S)–, –C(S)O–, –C(S)S–, –SC(S)–, –N(R_4)–, –N(R_4)C(O)–, –C(O)N(R_4)–, –C(R_5)=N–, –N=C(R_5)–, –C(R_5)=NO–, –ON=C(R_5)–, –P–, –P(OH)O–, arylene, substituted arylene, cycloalkylene, substituted cycloalkylene, cycloalkenylene, substituted cycloalkenylene, bivalent heterocyclyl or substituted heterocyclyl, where R_4 and R_5

independently being H, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, cycloalkenyl, substituted cycloalkenyl, alkynyl, substituted alkynyl, cycloalkynyl, substituted cycloalkynyl, aryl, substituted aryl, aralkyl or substituted aralkyl.

22. The solid of claim 12, wherein said at least one linker is attached to said at least one binding moiety and the inorganic substance independently via an ether, thioether, ester, thioester, carbonate, carbamate, phosphate, phosphonate, phosphoester, phosphoramidate, amine, amide, imide, urea, thiourea, sulfonamide, sulfoxide, sulfone, disulfide, oxime, O-acyl oxime, O-carbamoyl oxime, O-acyloxyalkyl oxime, O-acyloxyalkyloxy oxime, O-oximinophosphate, O-oximinophosphonate, O-oximinophosphoramidate or C=C linkage.

23. The solid of claim 12, wherein said at least one linker is formed from cyanogen bromide, a N-hydroxy succinimide ester, carbonyl diimidazole, reductive amination, 2-fluoro-1-methyl- pyridinium toluene-4-sulfonate activation, 1-ethyl-3-(3-dimethylpropyl)carbodiimide mediated amide bond formation, tosyl chloride, tresyl chloride, divinylsulfone, azlactone, cyanuric chloride, iodoacetyl or bromoacetyl activation, maleimide, pyridyl disulfide, an epoxy compound, 2-iminothiolane 5,5-dithio-bis-(2-nitrobenzoic acid), hydrazide, diazonium or Mannich condensation.

24. A method of isolating an analyte mixed with at least one other component in a mixture, said method comprising:

(1) contacting the solid of claim 10 with said mixture, wherein said at least one binding moiety has a specific affinity for said analyte;

(2) allowing said analyte to bind to said at least one binding moiety;

(3) removing said at least one other component from the solid having said analyte bound thereto;

(4) recovering said solid; and

(5) isolating the analyte from the solid.

25. The method of claim 24, wherein said at least one other component is removed in step (3) by washing the solid with a fluid to obtain a washate and discarding the washate; wherein said analyte is isolated in step (5) by placing an eluant on the solid and collecting the eluant.

26. The method of claim 24, wherein said solid comprises about 1 to about 10 R_{10} moieties per nm^2.

27. The method of claim 26 wherein said solid comprises about 0.04 to about 4 binding moieties per nm^2 solid.

28. The method of claim 24, wherein said inorganic substance is inorganic metal oxide, metal silicate or aluminosilicate.

29. The method of claim 28, wherein the inorganic substance is magnetically responsive.

30. The method of claim 28, wherein the inorganic metal oxide is silica, alumina, silica-alumina, zirconia, zirconate, titania, controlled pore glass or mixtures thereof.

31. The method of claim 28, wherein the inorganic metal oxide is chromatographic grade silica.

32. The method of claim 28, wherein the inorganic metal oxide is a silica gel.

33. The method of claim 24, wherein said inorganic metal substance is silica and R_{10} is $-CH_2OH$.

34. The method of claim 33, wherein said silica is silica gel.

35. The method of claim 33, wherein said silica is chromatographic grade silica.

36. The method of claim 24, wherein said binding moiety is biotin and said analyte is avidin, streptavidin, a substance attached to avidin or a substance attached to streptavidin.

37. The method of claim 24, wherein said binding moiety is avidin or streptavidin and said analyte is biotin or biotinylated.

38. A method of reducing nonspecific binding of impurity to a solid comprising inorganic substance, wherein the inorganic substance comprises at least one functional group to which non-specific binding occurs or which causes non-specific binding to occur, further wherein said inorganic substance is inorganic oxide, and said method comprises:

(1) providing said solid;

(2) reacting the at least one functional group of the inorganic substance with reactant to create moiety R_{10} on at least one surface of the inorganic substance wherein R_{10} is selected from the group consisting of $-CH_2OH$, $-CH(OH)_2$, $-CH(OH)CH_3$, $-CH_2CH_2OH$, $-C(OH)_2CH_3$, $-CH_2CH(OH)_2$ and $-CH(OH)CH_2(OH)$, and R_{10} is present on the surface of said inorganic substance in sufficient amounts such that when the inorganic substance is contacted with a mixture comprising impurity, nonspecific binding of said impurity to said solid is reduced.

39. The method of claim 38, wherein R_{10} is attached to said inorganic substance via a moiety or atom which is not present in the composition of inorganic substance prior to step (2).

40. The method of claim 38, wherein R_{10} is an entity selected from the group consisting of $-CH_2OH$, $-CH(OH)CH_3$ and $-CH_2CH_2OH$.

41. The method of claim 40, wherein R_{10} is $-CH_2OH$.

42. The method of claim 38, wherein said inorganic substance is inorganic metal oxide.

43. The method of claim 42, wherein the inorganic metal oxide is magnetically responsive.

44. The method of claim 42, wherein the inorganic metal oxide is silica, alumina, silica-alumina, zirconia, zirconate, titania, a controlled pore glass and the functional groups thereon comprise hydroxyl.

45. The method of claim 42, wherein said inorganic metal oxide is chromatographic grade silica.

46. The method of claim 42, wherein said inorganic metal oxide is silica gel.

47. A solid comprising (i) inorganic substance, (ii) moiety R_{10} located on at least one surface of said inorganic substance and (iii) at least one linker, wherein said inorganic substance is inorganic oxide, and said R_{10} is selected from the group consisting of $-CH_2OH$, $CH(OH_2)$, $-CH(OH)CH_3$, $-CH_2CH_2OH$, $-C(OH_2)CH_3$, $-CH_2CH(OH_2)$ and $CH(OH)CH_2(OH)$.

48. The solid of claim 47, wherein said at least one linker is optionally substituted bivalent chemical group.

49. The solid of claim 48, wherein the optionally substituted chemical group is hydrocarbyl comprising n –R– groups, with n being the number of –R– groups and n is an integer of at least 2, with n–1 –R– groups optionally replaced with –O–, –S–, carbonyl, thiocarbonyl, –OC(O)–, –C(O)O–, -SC(O)-, -C(O)S–, –OC(S)–, –C(S)O–, –C(S)S–, –SC(S)–, –N(R_4)–, –N(R_4)C(O)–, -C(O)N(R_4)–, -C(R_5)=N-, -N=C(R_5)–, –C(R_5)=NO–, –ON=C(R_5)–, –P–, –P(OH)O–, arylene, substituted arylene, cycloalkylene, substituted cycloalkylene, cycloalkenylene, substituted cycloalkenylene, bivalent heterocyclyl or substituted heterocyclyl, where R_4 and R_5 independently being H, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, cycloalkenyl, substituted cycloalkenyl, alkynyl, substituted alkynyl, cycloalkynyl, substituted cycloalkynyl, aryl, substituted aryl, aralkyl or substituted aralkyl

50. The solid of claim 47, wherein said at least one linker is bivalent optionally substituted chemical group of about 1 to about 30 atoms in length measured from the terminus of said group to the inorganic substance, wherein the chemical group comprises at least one –R– group, with said –R– group being a member selected from the group consisting of –CH_2–, –C(R_1)H–, –C(R_2)=C(R_3)– and –C≡C–, where R_1, R_2 and R_3 independently being H, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, cycloalkenyl, substituted cycloalkenyl, alkynyl, substituted alkynyl, cycloalkynyl, substituted cycloalkynyl, aryl, substituted aryl, aralkyl or substituted aralkyl, said –R– group optionally replaced with –O–, –S–, carbonyl, thiocarbonyl, –OC(O)–, –C(O)O–, –SC(O)–, –C(O)S–, –OC(S)–, –C(S)O–, –C(S)S–, –SC(S)–, –N(R_4)–, –N(R_4)C(O)–, –C(O)N(R_4)–, –C(R_5)=N–, –N=C(R_5)–, –C(R_5)=NO–, –ON=C(R_5)–, –P–, –P(OH)O–, arylene, substituted arylene, cycloalkylene, substituted cycloalkylene, cycloalkenylene, substituted cycloalkenylene, bivalent heterocyclyl or substituted heterocyclyl, where R_4 and R_5 independently being H, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, cycloalkenyl, substituted cycloalkenyl, alkynyl,

substituted alkynyl, cycloalkynyl, substituted cycloalkynyl, aryl, substituted aryl, aralkyl or substituted aralkyl.

51. The solid of claim 47, wherein said at least one linker is attached to the inorganic substance via an ether, thioether, ester, thioester, carbonate, carbamate, phosphate, phosphonate, phosphoester, phosphoramidate, amine, amide, imide, urea, thiourea, sulfonamide, sulfoxide, sulfone, disulfide, oxime, O-acyl oxime, O-carbamoyl oxime, O-acyloxyalkyl oxime, O-acyloxyalkyloxy oxime, O-oximinophosphate, O-oximinophosphonate, O-oximinophosphoramidate or C=C linkage.

52. The solid of claim 47, wherein said at least one linker is formed from cyanogen bromide, a N-hydroxy succinimide ester, carbonyl diimidazole, reductive amination, 2-fluoro-1-methyl- pyridinium toluene-4-sulfonate activation, 1-ethyl-3-(3-dimethylpropyl)carbodiimide mediated amide bond formation, tosyl chloride, tresyl chloride, divinylsulfone, azlactone, cyanuric chloride, iodoacetyl or bromoacetyl activation, maleimide, pyridyl disulfide, an epoxy compound, 2-iminothiolane 5,5-dithio-bis-(2-nitrobenzoic acid), hydrazide, diazonium or Mannich condensation.

53. The solid of claim 47, comprising about 1 to about 10 R_{10} moieties per nm^2 solid.

54. The solid of claim 53, wherein said inorganic substance is silica and R_{10} is $-CH_2OH$.